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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10-081,153	02/25/2002	Kiyokazu Mori	040302-0288	9174

22425 7590 05/21/2003

FOLEY AND LARDNER
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EXAMINER

ELVE, MARIA ALEXANDRA

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/081,153

Applicant(s)

MORI ET AL

Examiner

M Alexandra Elve

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7 & 8
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -(e) the invention was described in-
(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claims 1-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Mori et al. (US Pat. 6,399,915).

Mori et al. discloses a method and apparatus for determining the quality of a weld. The emission intensity of a visible light emitted from the weld during a laser welding (using a YAG laser) is detected and the reflected light is detected. The frequencies of the two are analyzed and a determination is made as to the quality of the weld (abstract). Electrical components of the radiated and reflected light are determined. The results of the analysis yield information on the weld quality, such as, overlapped seam gap, and weld anomalies (col. 2, lines 24-67). Photo sensors are converted an intensity of the plasma light (visible light) emitted from the weld and the intensity of a reflected light of YAG laser without an absorption into the weld of the working

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material pieces after an irradiation of the plasma light on the same working material pieces into electrical signals, respectively. The converted electrical signals from the respective photo sensors are supplied to a measuring device (col. 5, lines 31-45).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou et al. (US Pat. 5,961,859).

Chou et al. discloses a method and apparatus for monitoring the quality of a laser process such as welding. The light emitted from the weld is irradiated to form a plasma. The plasma is detected and analyzed. Variations of the monitored plasma determined the acceptability of the weld (abstract). The step of monitoring is comprised of passing the emitted light through a light filter having a light transmission band which covers the major emission lines of the emitted light. Additionally, there is a means for visually recording the plasma profile (col. 2, lines 29-40 & col.

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3, lines 19-27). The spatial distribution of the filtered light from the plasma is visually recorded (col. 4, lines 64-67). The weld quality is determined based on the depth of the weld penetration from the top surface of the workpiece, the welded area, and the presence of weld defects, including surface depression, voids and cracks (col. 6, lines 60-65).

5. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swidwa (US Pat. 5,728,992).

Swidwa discloses an apparatus and method for real time evaluation of laser welds. Welds are made by pulses of laser light energy. The light emitted from the weld site is analyzed. The pulses of light are compared with base line pulses in order to determine the weld quality (abstract). Analysis of the light from the weld site can be used to detect weld defects such a blow holes. Blow holes are caused by contamination, usually water at the weld site which is converted to steam. Blowing off the steam causes splattering of the metal leading to a rough weld surface. It also results in lower temperatures being reached as the energy escapes the weld site. Blow holes and other such contamination defects can be detected by low erratic amplitude of the pulses of light from the weld site. In addition to analyzing the individual pulses of light from the weld site, displays are generated which present the amplitude of the pulses from the weld site around the entire weld. Blow holes and other contaminates show up as spikes (col. 2, lines 58-67 & col. 3, lines 1-5). Swidwa does not specifically teach the use of a YAG laser, although the use of a laser

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is stated. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a YAG laser as this is merely one of a variety of lasers.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See US PTO-892.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Alexandra Elve whose telephone number is (703) 308-0092. The examiner can normally be reached Monday to Friday from 6:30 AM to 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn, can be reached on (703) 308-3318.

Any inquiry of general nature to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703) 308-0661.

May 19, 2003.

EPD